

SEQUENCE LISTING

<110> Travis, James

Potempa, Jan S

Banbula, Agnieszka

<120> Dipeptidylpeptidases And Methods Of Use

<130> 235.00440101

<150> US 60/246,827

<151> 2000-11-08

<160> 26

<170> PatentIn version 3.0

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<211> 2139

<212> DNA

<213> Porphyromonas gingivalis

<400> 1

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ggacagctca agggatatcac tgacgagatg gagcgtctgc gcaaagctca ggaggtatgc    480
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<211> 712

<212> PRT

<213> Porphyromonas gingivalis

<400> 2

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35 40 45
Leu Pro Leu Asp Ser Leu Tyr Ser Phe Asp Lys Pro Ser Ile Ala Asn
50 55 60
Ala Val Val Ile Phe Gly Gly Gly Cys Thr Gly Ile Thr Val Ser Asp
65 70 75 80
Gln Gly Leu Ile Phe Thr Asn His His Cys Gly Tyr Gly Ala Ile Gln
85 90 95
Ser Gln Ser Thr Val Asp His Asp Tyr Leu Arg Asp Gly Phe Val Ser
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Arg Thr Met Gly Glu Glu Leu Pro Ile Pro Gly Leu Ser Val Lys Tyr
115 120 125
Leu Arg Lys Ile Val Lys Val Thr Asp Lys Val Glu Gly Gln Leu Lys
130 135 140
Gly Ile Thr Asp Glu Met Glu Arg Leu Arg Lys Ala Gln Glu Val Cys
145 150 155 160
Gln Glu Leu Ala Lys Lys Glu Asn Ala Asp Glu Asn Gln Leu Cys Ile
165 170 175
Val Glu Pro Phe Tyr Ser Asn Asn Glu Tyr Phe Leu Ile Val Tyr Asp
180 185 190
Val Phe Lys Asp Val Arg Met Val Phe Ala Pro Pro Ser Ser Val Gly
195 200 205
Lys Phe Gly Gly Asp Thr Asp Asn Trp Met Trp Pro Arg His Thr Gly
210 215 220
Asp Phe Ser Val Phe Arg Val Tyr Ala Gly Ala Asp Asn Arg Pro Ala
225 230 235 240
Glu Tyr Ser Lys Asp Asn Lys Pro Tyr Lys Pro Val Tyr Phe Ala Ala
245 250 255
Val Ser Met Gln Gly Tyr Lys Ala Asp Asp Tyr Ala Met Thr Ile Gly
260 265 270
Phe Pro Gly Ser Thr Asp Arg Tyr Leu Thr Ser Trp Gly Val Glu Asp
275 280 285
Arg Ile Glu Asn Glu Asn Asn Pro Arg Ile Glu Val Arg Gly Ile Lys
290 295 300
Gln Gly Ile Trp Lys Glu Ala Met Ser Ala Asp Gln Ala Thr Arg Ile
305 310 315 320
Lys Tyr Ala Ser Lys Tyr Ala Gln Ser Ala Asn Tyr Trp Lys Asn Ser
325 330 335

Ile Gly Met Asn Arg Gly Leu Ala Arg Leu Asp Val Ile Gly Arg Lys
 340 345 350
 Arg Ala Glu Glu Arg Ala Phe Ala Asp Trp Ile Arg Lys Asn Gly Lys
 355 360 365
 Ser Ala Val Tyr Gly Asp Val Leu Ser Ser Leu Glu Lys Ala Tyr Lys
 370 375 380
 Glu Gly Ala Lys Ala Asn Arg Glu Met Thr Tyr Leu Ser Glu Thr Leu
 385 390 395 400
 Phe Gly Gly Thr Glu Val Val Arg Phe Ala Gln Phe Ala Asn Ala Leu
 405 410 415
 Ala Thr Asn Pro Asp Ala His Ala Gly Ile Leu Lys Ser Leu Asp Asp
 420 425 430
 Lys Tyr Lys Asp Tyr Leu Pro Ser Leu Asp Arg Lys Val Leu Pro Ala
 435 440 445
 Met Leu Asp Ile Val Arg Arg Arg Ile Pro Ala Asp Lys Leu Pro Asp
 450 455 460
 Ile Phe Lys Asn Val Ile Asp Lys Lys Phe Lys Gly Asp Thr Lys Lys
 465 470 475 480
 Tyr Ala Asp Phe Val Phe Asp Lys Ser Val Val Pro Tyr Ser Asp Lys
 485 490 495
 Phe His Ala Met Leu Lys Ser Met Asp Lys Glu Lys Phe Ala Lys Ala
 500 505 510
 Ile Glu Lys Asp Pro Ala Val Glu Leu Ser Lys Ser Val Ile Ala Ala
 515 520 525
 Ala Arg Ala Ile Gln Ala Asp Ala Met Ala Asn Ala Tyr Ala Ile Glu
 530 535 540
 Lys Gly Lys Arg Leu Phe Phe Ala Gly Leu Arg Glu Met Tyr Pro Gly
 545 550 555 560
 Arg Ala Leu Pro Ser Asp Ala Asn Phe Thr Met Arg Met Ser Tyr Gly
 565 570 575
 Ser Ile Lys Gly Tyr Glu Pro Gln Asp Gly Ala Trp Tyr Asn Tyr His
 580 585 590
 Thr Thr Gly Lys Gly Val Leu Glu Lys Gln Asp Pro Lys Ser Asp Glu
 595 600 605
 Phe Ala Val Gln Glu Asn Ile Leu Asp Leu Phe Arg Thr Lys Asn Tyr
 610 615 620
 Gly Arg Tyr Ala Glu Asn Gly Gln Leu His Ile Ala Phe Leu Ser Asn
 625 630 635 640
 Asn Asp Ile Thr Gly Gly Asn Ser Gly Ser Pro Val Phe Asp Lys Asn
 645 650 655
 Gly Arg Leu Ile Gly Leu Ala Phe Asp Gly Asn Trp Glu Ala Met Ser
 660 665 670

Gly Asp Ile Glu Phe Glu Pro Asp Leu Gln Arg Thr Ile Ser Val Asp
675 680 685

Ile Arg Tyr Val Leu Phe Met Ile Asp Lys Trp Gly Gln Cys Pro Arg
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Leu Ile Gln Glu Leu Lys Leu Ile
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<210> 3

<211> 52

<212> PRT

<213> Porphyromonas gingivalis

<400> 3

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Val Leu Phe Met
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<210> 4

<211> 52

<212> PRT

<213> Staphylococcus aureus

<400> 4

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<210> 5

<211> 734

<212> PRT

<213> Shewanella putrefaciens

<400> 5

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35 40 45
Asp Val Leu Lys Ala Lys Gly Leu Glu Ile Asp Ala Lys Ser Ile Ser
50 55 60
Lys Leu Thr Glu Phe Pro Met Asn Ala Val Ile Ser Leu Gly Gly Cys
65 70 75 80
Thr Ala Ser Phe Val Ser Pro Lys Gly Leu Val Val Thr Asn His His
85 90 95
Cys Ala Tyr Gly Ser Ile Gln Tyr Asn Ser Thr Pro Glu Lys Asn Leu
100 105 110
Leu Gln Asp Gly Phe Leu Ala Lys Thr Phe Ala Asp Glu Leu Pro Ala
115 120 125
Ala Pro Gly Ser Arg Val Tyr Val Thr Glu Asp Val Thr Asn Val Thr
130 135 140
Glu Arg Val Lys Ala Gly Leu Glu Asn Lys Thr Gly Arg Glu Phe Tyr
145 150 155 160
Gln Gly Val Glu Asn Gln Glu Lys Ala Leu Val Ala Glu Cys Glu Lys
165 170 175
Asp Glu Gly Tyr Arg Cys Gln Val Tyr Ser Phe His Gly Gly Leu Glu
180 185 190
Tyr Tyr Leu Val Lys Gln Leu Glu Ile Arg Asp Val Arg Leu Val Tyr
195 200 205
Asn Pro Ala Gly Ser Val Gly Lys Tyr Gly Gly Asp Val Asp Asn Trp
210 215 220
Met Trp Pro Arg His Thr Gly Asp Tyr Ser Phe Tyr Arg Ala Tyr Val
225 230 235 240
Ser Lys Asn Gly Lys Pro Ala Glu Phe Ser Ala Asp Asn Val Pro Tyr
245 250 255
Glu Pro Lys Ser Phe Leu Lys Val Ser Ala Lys Gly Val Ser Glu Gly
260 265 270
Asp Phe Val Met Val Ala Gly Tyr Pro Gly Arg Thr Asn Arg Tyr Arg
275 280 285
Thr Ala Thr Glu Val Gln Asn Glu Phe Glu Trp Ala Tyr Pro Glu Gly
290 295 300
Lys Met Leu Arg Glu Arg Phe Ile Glu Ile Ile Lys Ala Thr Ala Pro
305 310 315 320

Glu Gly Ser Asp Glu Arg Ile Lys Tyr Glu Ser Gln Ile Ala Gly Leu
 325 330 335
 Ala Asn Tyr Ala Lys Asn Phe Thr Ser Met Ile Glu Phe Tyr Gly Lys
 340 345 350
 Ser Thr Met Leu Ala Asp Arg Lys Ala Leu Glu Ala Lys Leu Ala Glu
 355 360 365
 Trp Ile Ala Lys Asp Ser Ser Arg Glu Ala Lys Tyr Gly Lys Thr Leu
 370 375 380
 Ala Glu Leu Asp Ala Leu Ile Ala Lys Ser Lys Ala His Gln Glu Arg
 385 390 395 400
 Asp Met Ile Leu Ser Tyr Ile Ser Ser Thr Thr Met Leu Pro Thr Ala
 405 410 415
 Asn Asn Leu Tyr Arg Leu Ala His Glu Lys Gln Leu Pro Asp Met Gln
 420 425 430
 Arg Glu Pro Gly Phe Gln Asp Arg Asp Met Thr Arg Phe Lys Ala Ser
 435 440 445
 Met Glu Arg Ile Asp Arg Arg Tyr Ala Ala Ser Val Asp Lys Ala Val
 450 455 460
 Leu Phe Asp Met Leu Lys Arg Tyr Ala Ala Leu Pro Glu Ala Gln Arg
 465 470 475 480
 Leu Pro Ala Met Asp Lys Ala Phe Gly Ile Asp Asn Lys Val Asn Glu
 485 490 495
 Ala Lys Leu Ala Lys Thr Leu Asp Lys Met Tyr Ala Lys Thr Glu Leu
 500 505 510
 Gly Asn Lys Asp Val Arg Leu Ala Trp Met Glu Lys Ser Val Asp Asp
 515 520 525
 Phe Lys Ala Ser Lys Asp Pro Phe Ile Gln Phe Ala Val Ala Met Tyr
 530 535 540
 Asp Thr Asn Met Ser Glu Glu Lys Lys Glu Lys Glu Leu Asp Gly Glu
 545 550 555 560
 Leu Met Lys Val Arg Pro Gln Tyr Met Asp Ala Ile Ile Ala Tyr Asn
 565 570 575
 Leu Glu Gln Gly Lys Pro Val Tyr Ala Asp Ala Asn Ser Ser Leu Arg
 580 585 590
 Val Thr Val Gly His Val Lys Gly Tyr Ser Pro Lys Asp Gly Leu Val
 595 600 605
 Ala Val Pro Phe Thr Arg Leu Glu Gly Ile Val Gln Lys Asp Thr Gly
 610 615 620
 Ile Asp Pro Phe Asp Ala Pro Lys Gln Gln Leu Glu Leu Ile Lys Gln
 625 630 635 640
 Lys Gln Tyr Gly Asp Phe Tyr Met Lys Ser Ile Asp Ser Val Pro Val
 645 650 655

Asn Phe Leu Ser Thr Leu Asp Thr Thr Gly Gly Asn Ser Gly Ser Pro
660 665 670
Thr Leu Asn Gly Arg Ala Glu Leu Val Gly Leu Leu Phe Asp Gly Val
675 680 685
Tyr Glu Ser Ile Ile Gly Gly Trp Ala Phe Asp Asn Glu Ile Asn Arg
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Asp His Ala Asp Asn Leu Leu Ala Glu Met Glu Ile Val Asn
725 730

<210> 6

<211> 732

<212> PRT

<213> Shewanella putrefaciens

<400> 6

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Asp Lys Leu Ser Ala Arg Gly Ile Asp Ile Pro Ala Asp Lys Leu Ala
35 40 45
Asp Leu Thr Ser Tyr Pro Met Asn Ala Val Val Gly Leu Gly Tyr Cys
50 55 60
Thr Ala Ser Phe Val Ser Pro Gln Gly Leu Val Val Thr Asn His His
65 70 75 80
Cys Ala Tyr Lys Ala Ile Gln Tyr Asn Thr Lys Lys Glu His Asn Tyr
85 90 95
Leu Glu Gln Gly Phe Leu Ala Thr Ser Met Asp Lys Glu Pro Ser Ala
100 105 110
Gly Pro Asn Glu Arg Leu Tyr Ile Thr Glu Ala Val Thr Asp Val Thr
115 120 125
Ser Asp Val Thr Lys Asp Leu Ser Gln Asp Pro Leu Lys Arg Tyr Glu
130 135 140
Glu Ile Glu Asn His Ser Lys Ala Leu Ile Lys Ser Cys Glu Ala Asp
145 150 155 160
Asp Asn Tyr Arg Cys Asn Val Arg Ser Phe His Asn Gly Leu Glu Tyr
165 170 175
Tyr Leu Ile Lys Gln Leu Met Ile Arg Asp Val Arg Leu Val Tyr Ala
180 185 190
Pro Pro Glu Ser Val Gly Gly Tyr Gly Gly Asp Ile Asp Asn Tyr Glu

	195					200					205				
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Lys 225	Asp	Gly	Lys	Pro	Ala 230	Ala	Phe	Ser	Glu	Asp 235	Asn	Ile	Pro	Tyr	Thr 240
Pro	Lys	Ser	Tyr	Leu 245	Lys	Val	Asn	Ala	Asp 250	Gly	Val	Lys	Ala	Gly 255	Asp
Gly	Val	Phe	Val 260	Ala	Gly	Tyr	Pro	Gly 265	Thr	Thr	Asn	Arg	Tyr 270	Asn	Leu
Thr	Ser	Glu 275	Leu	Lys	Phe	Ala	Ser 280	Asp	Trp	Leu	Tyr	Pro 285	Thr	Gln	Ala
Lys	Arg 290	Tyr	Gln	Leu	Gln	Ile 295	Asp	Thr	Ile	Glu	Ala 300	Met	Gly	Gln	Lys
Asp 305	Ala	Asp	Ile	Ala	Ile 310	Lys	Tyr	Ala	Gly	Asn 315	Met	Ala	Ser	Met	Ala 320
Asn	Arg	Met	Lys	Lys 325	Leu	Asn	Gly	Leu	Leu 330	Ala	Gly	Phe	Lys	Ala 335	Thr
Asp	Ile	Val	Gly 340	Ile	Lys	Gln	Gln	Arg 345	Glu	Asn	Asp	Phe	Leu 350	Ala	Trp
Leu	Thr	Lys 355	Asn	Pro	Asn	Leu	Asn 360	Gln	Asn	Leu	Ile	Ser 365	Glu	Leu	Glu
Val	Leu 370	Leu	Ala	Glu	Gln	Gln 375	Leu	Gln	Thr	Gln	Thr 380	Asn	Tyr	Tyr	Phe
Thr 385	Asn	Ala	Gln	Ser	Ser 390	Thr	Leu	Leu	Thr	Ala 395	Ala	Asn	Asn	Leu	Tyr 400
Arg	Leu	Ala	Lys	Glu 405	Lys	Gln	Lys	Ser	Asp 410	Ala	Glu	Arg	Glu	Ile 415	Gly
Tyr	Gln	Glu	Arg 420	Asp	Leu	Ala	Met	Phe 425	Ser	Ser	Arg	Leu	Lys 430	Arg	Ile
Asp	Ser	Ser 435	Phe	Asp	Val	Lys	Val 440	Asp	Lys	Thr	Leu	Trp 445	Leu	Gln	Asp
Leu	Asn 450	Ala	Tyr	Leu	Ser	Gln 455	Pro	Asn	Arg	Val	Ala 460	Ala	Leu	Asp	Asn
Met 465	Leu	Asn	Leu	Asn	Asp 470	Lys	Asn	Val	Ser	Leu 475	Ala	Ala	Lys	Leu	Asp 480
Gly	Leu	Tyr	Ser	Leu 485	Thr	Thr	Leu	Thr	Asp 490	Gln	Ala	Gln	Arg	Leu 495	Ala
Trp	Met	Glu	Ala 500	Asp	Ala	Lys	Ala	Phe 505	Glu	Thr	Ser	Ser	Asp 510	Pro	Phe
Ile	Arg	Leu 515	Ala	Val	Ala	Leu	Tyr 520	Asp	Thr	Asn	Met	Ala 525	Gln	Glu	Lys
Ala	Glu 530	Lys	Ile	Leu	Ala	Gly 535	Lys	Leu	Ser	Thr	Ala 540	Arg	Pro	Ala	Tyr

Met Ala Ala Val Ile Asp Tyr Tyr Lys Ala Asn Asn Trp Pro Val Tyr
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 Pro Asp Ala Asn Gly Thr Leu Arg Ile Ser Tyr Gly Met Val Asp Gly
 565 570 575
 Tyr Gln Ser Arg Asp Ala Leu Tyr Lys Gln Pro Phe Thr Arg Leu Asp
 580 585 590
 Gly Ile Val Ala Lys His Thr Gly Val Glu Pro Tyr Asn Ala Pro Lys
 595 600 605
 Lys Leu Leu Asp Ala Ile Ser Val Gln Arg Phe Gly Asp His Leu Val
 610 615 620
 Lys Ser Val Tyr Gln Asp Pro Arg Gly Trp Ile Cys Arg Leu Phe Ser
 625 630 635 640
 Cys Leu Asp Lys Pro Glu Glu Phe Asn Ser Val Pro Val Asn Phe Leu
 645 650 655
 Ser Ser Val Asp Thr Thr Gly Gly Asn Ser Gly Ser Pro Val Phe Asn
 660 665 670
 Gly Lys Gly Glu Leu Val Gly Leu Asn Phe Asp Ser Thr Tyr Glu Ala
 675 680 685
 Ile Thr Lys Asp Trp Phe Phe Asn Pro Thr Ile Thr Arg Ala Val His
 690 695 700
 Val Asp Ile Arg Tyr Ile Leu Trp Met Met Asp Glu Val Asp His Ala
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 Asp Asn Leu Ile Lys Glu Leu Asp Leu Val Arg Asn
 725 730
 <210> 7
 <211> 716
 <212> PRT
 <213> xylella fastidiosa

<400> 7

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 20 25 30
 Pro Glu Ile Ala Gly Pro Leu Lys Gln Ala Gly Leu Gln Leu Ser Pro
 35 40 45
 Glu Gln Leu Ser Asn Leu Thr Gly Asp Pro Met Gly Ala Val Val Ser
 50 55 60
 Leu Gly Asn Cys Thr Ala Ser Leu Val Ser Pro Glu Gly Leu Val Ile
 65 70 75 80

<400> 8

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Glu	Leu	Asn	Gln	Glu	Asn	Leu	Asp	Arg	Met	Arg	Glu	Leu	Gly	Phe	Thr
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Leu	Pro	Leu	Asp	Ser	Leu	Tyr	Ser	Phe	Asp	Lys	Pro	Ser	Ile	Ala	Asn
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Ala	Val	Val	Ile	Phe	Gly	Gly	Gly	Cys	Thr	Gly	Ile	Thr	Val	Ser	Asp
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Gln	Gly	Leu	Ile	Phe	Thr	Asn	His	His	Cys	Gly	Tyr	Gly	Ala	Ile	Gln
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Ser	Gln	Ser	Thr	Val	Asp	His	Asp	Tyr	Leu	Arg	Asp	Gly	Phe	Val	Ser
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Leu	Arg	Lys	Ile	Val	Lys	Val	Thr	Asp	Lys	Val	Glu	Gly	Gln	Leu	Lys
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Gln	Glu	Leu	Ala	Lys	Lys	Glu	Asn	Ala	Asp	Glu	Asn	Gln	Leu	Cys	Ile
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Val	Glu	Pro	Phe	Tyr	Ser	Asn	Asn	Glu	Tyr	Phe	Leu	Ile	Val	Tyr	Asp
			180					185					190		
Val	Phe	Lys	Asp	Val	Arg	Met	Val	Phe	Ala	Pro	Pro	Ser	Ser	Val	Gly
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Asp	Phe	Ser	Val	Phe	Arg	Val	Tyr	Ala	Gly	Ala	Asp	Asn	Arg	Pro	Ala
225					230					235				240	
Glu	Tyr	Ser	Lys	Asp	Asn	Lys	Pro	Tyr	Lys	Pro	Val	Tyr	Phe	Ala	Ala
				245					250					255	
Val	Ser	Met	Gln	Gly	Tyr	Lys	Ala	Asp	Asp	Tyr	Ala	Met	Thr	Ile	Gly
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Phe	Pro	Gly	Ser	Thr	Asp	Arg	Tyr	Leu	Thr	Ser	Trp	Gly	Val	Glu	Asp
		275					280					285			
Arg	Ile	Glu	Asn	Glu	Asn	Asn	Pro	Arg	Ile	Glu	Val	Arg	Gly	Ile	Lys
	290					295					300				
Gln	Gly	Ile	Trp	Lys	Glu	Ala	Met	Ser	Ala	Asp	Gln	Ala	Thr	Arg	Ile
305					310					315					320

1030T = 55EEDOT

Lys	Tyr	Ala	Ser	Lys	Tyr	Ala	Gln	Ser	Ala	Asn	Tyr	Trp	Lys	Asn	Ser
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Ile	Gly	Met	Asn	Arg	Gly	Leu	Ala	Arg	Leu	Asp	Val	Ile	Gly	Arg	Lys
			340					345					350		
Arg	Ala	Glu	Glu	Arg	Ala	Phe	Ala	Asp	Trp	Ile	Arg	Lys	Asn	Gly	Lys
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Ser	Ala	Val	Tyr	Gly	Asp	Val	Leu	Ser	Ser	Leu	Glu	Lys	Ala	Tyr	Lys
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Phe	Gly	Gly	Thr	Glu	Val	Val	Arg	Phe	Ala	Gln	Phe	Ala	Asn	Ala	Leu
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Ala	Thr	Asn	Pro	Asp	Ala	His	Ala	Gly	Ile	Leu	Lys	Ser	Leu	Asp	Asp
			420					425					430		
Lys	Tyr	Lys	Asp	Tyr	Leu	Pro	Ser	Leu	Asp	Arg	Lys	Val	Leu	Pro	Ala
		435					440					445			
Met	Leu	Asp	Ile	Val	Arg	Arg	Arg	Ile	Pro	Ala	Asp	Lys	Leu	Pro	Asp
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Tyr	Ala	Asp	Phe	Val	Phe	Asp	Lys	Ser	Val	Val	Pro	Tyr	Ser	Asp	Lys
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Ala	Arg	Ala	Ile	Gln	Ala	Asp	Ala	Met	Ala	Asn	Ala	Tyr	Ala	Ile	Glu
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Lys	Gly	Lys	Arg	Leu	Phe	Phe	Ala	Gly	Leu	Arg	Glu	Met	Tyr	Pro	Gly
		545			550					555					560
Arg	Ala	Leu	Pro	Ser	Asp	Ala	Asn	Phe	Thr	Met	Arg	Met	Ser	Tyr	Gly
				565					570					575	
Ser	Ile	Lys	Gly	Tyr	Glu	Pro	Gln	Asp	Gly	Ala	Trp	Tyr	Asn	Tyr	His
			580					585					590		
Thr	Thr	Gly	Lys	Gly	Val	Leu	Glu	Lys	Gln	Asp	Pro	Lys	Ser	Asp	Glu
		595					600					605			
Phe	Ala	Val	Gln	Glu	Asn	Ile	Leu	Asp	Leu	Phe	Arg	Thr	Lys	Asn	Tyr
		610				615					620				
Gly	Arg	Tyr	Ala	Glu	Asn	Gly	Gln	Leu	His	Ile	Ala	Phe	Leu	Ser	Asn
		625			630					635					640
Asn	Asp	Ile	Thr	Gly	Gly	Asn	Ser	Gly	Ser	Pro	Val	Phe	Asp	Lys	Asn
				645					650					655	
Gly	Arg	Leu	Ile	Gly	Leu	Ala	Phe	Asp	Gly	Asn	Trp	Glu	Ala	Met	Ser

	660		665		670
Gly	Asp	Ile	Glu	Phe	Glu
	675				
		Pro	Asp	Leu	Gln
			680		
				Arg	Thr
					Ile
					685
				Ser	Val
					Asp
Ile	Arg	Tyr	Val	Leu	Phe
690					Met
					695
				Ile	Asp
				Lys	Trp

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<212> PRT

<213> Porphyromonas gingivalis

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Met	Lys	Lys	Arg	Leu	Leu	Leu	Pro	Leu	Phe	Ala	Val	Leu	Cys	Leu	Cys
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Gln	Ile	Ala	His	Ala	Asp	Glu	Gly	Met	Trp	Leu	Met	Gln	Gln	Leu	Gly
			20					25					30		
Arg	Lys	Tyr	Ala	Gln	Met	Lys	Glu	Arg	Gly	Leu	Lys	Met	Lys	Glu	Tyr
		35					40					45			
Asp	Leu	Tyr	Asn	Pro	Asn	Gly	Thr	Ser	Leu	Lys	Asp	Ala	Val	Val	Leu
	50					55					60				
Phe	Asp	Gly	Gly	Cys	Thr	Gly	Glu	Val	Val	Ser	Asp	Arg	Gly	Leu	Val
65					70					75				80	
Leu	Thr	Asn	His	His	Cys	Gly	Tyr	Asp	Met	Ile	Gln	Ala	His	Ser	Thr
				85					90					95	
Leu	Glu	His	Asn	Tyr	Leu	Glu	Asn	Gly	Phe	Trp	Ala	Met	Arg	Glu	Ala
			100					105					110		
Asp	Glu	Leu	Pro	Asn	Lys	Asp	Ile	Ser	Val	Val	Phe	Ile	Asp	Lys	Ile
		115					120					125			
Glu	Asp	Val	Thr	Asp	Tyr	Val	Lys	Lys	Asp	Leu	Lys	Ala	Ile	Lys	Asp
	130					135					140				
Pro	Asn	Ser	Met	Asp	Tyr	Leu	Ser	Pro	Lys	Tyr	Leu	Gln	Lys	Leu	Ala
145					150					155					160
Asp	Lys	Lys	Ala	Gly	Lys	Asn	Phe	Ser	Ala	Lys	Asn	Pro	Gly	Leu	Ser
				165					170					175	
Val	Glu	Ile	Lys	Ala	Phe	Tyr	Gly	Gly	Asn	Leu	Tyr	Leu	Met	Phe	Thr
			180					185					190		
Lys	Lys	Thr	Tyr	Thr	Asp	Val	Arg	Leu	Val	Gly	Ala	Pro	Pro	Thr	Ser
		195					200					205			
Ile	Gly	Lys	Phe	Gly	Ala	Asp	Thr	Asp	Asn	Trp	Ile	Trp	Pro	Arg	His
	210					215					220				
Thr	Gly	Asp	Phe	Ser	Ile	Phe	Arg	Ile	Tyr	Ala	Asp	Lys	Asn	Gly	Asn
225					230					235					240

Pro Ala Pro Tyr Ser Glu Asp Asn Val Pro Leu Lys Pro Lys Arg Phe
245 250 255
Phe Asn Ile Ser Leu Gly Gly Val Gln Glu Asn Asp Tyr Ala Met Ile
260 265 270
Met Gly Phe Pro Gly Thr Thr His Arg Tyr Phe Thr Ala Ser Glu Val
275 280 285
Asp Glu Trp Lys Ser Ile Asp Asn Asp Ile Arg Ile Arg Met Arg Asp
290 295 300
Ile Arg Gln Gly Val Met Leu Arg Glu Met Leu Ala Asp Pro Gln Ile
305 310 315 320
Lys Ile Met Tyr Ser Ala Lys Tyr Ala Ala Ser Gln Asn Ala Tyr Lys
325 330 335
Arg Ala Ile Gly Ala Asn Trp Ala Ile Lys Thr Arg Gly Leu Arg Gln
340 345 350
Asn Lys Gln Ala Met Gln Asp Arg Leu Ile Ala Trp Gly Ala Lys Gln
355 360 365
Gly Thr Pro Arg Tyr Glu Glu Ala Val His Glu Ile Asp Ala Thr Val
370 375 380
Ala Lys Arg Ala Asp Leu Arg Arg Arg Tyr Trp Met Ile Glu Glu Gly
385 390 395 400
Ile Ile Arg Gly Ile Glu Phe Ala Arg Ser Pro Ile Pro Thr Glu Asp
405 410 415
Glu Thr Lys Ala Leu Gln Gly Asn Asp Ala Ser Ala Arg Lys Glu Ala
420 425 430
Ile Asp Lys Ile Arg Thr Arg Tyr Ser Lys Phe Ala Asn Lys Asp Tyr
435 440 445
Ser Ala Glu Val Asp Lys Lys Val Ala Val Ala Met Leu Thr Glu Tyr
450 455 460
Leu Lys Glu Ile Pro Tyr Glu Asn Leu Pro Leu His Leu Arg Leu Val
465 470 475 480
Lys Asp Arg Phe Ala Gly Asp Val Gln Ala Tyr Val Asp Asp Ile Phe
485 490 495
Ala Arg Ser Val Phe Gly Ser Glu Ala Gln Phe Asp Ala Phe Ala Ala
500 505 510
Val Pro Ser Val Glu Lys Leu Ala Glu Asp Pro Met Val Leu Phe Ala
515 520 525
Ser Ser Val Phe Asp Glu Tyr Arg Lys Leu Tyr Asn Glu Leu Arg Pro
530 535 540
Tyr Asp Asp Pro Ile Leu Arg Ala Gln Arg Thr Tyr Ile Ala Gly Leu
545 550 555 560
Leu Glu Met Asp Gly Asp Gln Asp Gln Phe Pro Asp Ala Asn Leu Thr
565 570 575

Leu Arg Phe Thr Tyr Gly Gln Val Lys Gly Tyr Ser Pro Arg Asp Asn
 580 585 590
 Val Tyr Tyr Gly His Gln Thr Thr Leu Asp Gly Val Met Glu Lys Glu
 595 600 605
 Asp Pro Asp Asn Trp Glu Phe Val Val Asp Pro Lys Leu Lys Ala Val
 610 615 620
 Tyr Glu Arg Lys Asp Phe Gly Arg Tyr Ala Asp Arg Ser Gly Arg Met
 625 630 635 640
 Pro Val Ala Phe Cys Ala Thr Thr His Thr Thr Gly Gly Asn Ser Gly
 645 650 655
 Ser Pro Val Met Asn Ala Asn Gly Glu Leu Ile Gly Leu Asn Phe Asp
 660 665 670
 Arg Asn Trp Glu Gly Val Gly Gly Asp Ile Gln Tyr Leu Ala Asp Tyr
 675 680 685
 Gln Arg Ser Ile Ile Val Asp Ile Arg Tyr Val Leu Leu Val Ile Asp
 690 695 700
 Lys Val Gly Gly Cys Gln Arg Leu Leu Asp Glu Met Asn Ile Val Pro
 705 710 715 720

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Ser Pro Tyr Ser Ser Glu Thr Thr
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Ala Pro Val Arg Ser Leu
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Gln Lys Gln Met Ser Asp Arg Arg Glu
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<211> 26

<212> PRT

<213> Porphyromonas gingivalis

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Ala Asp Lys Gly Met Met Trp Leu Leu Asn Glu Leu Asn Gln Glu Asn

1 5 10 15

Leu Asp Arg Met Arg Glu Leu Gly Phe Thr
20 25

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<212> PRT

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Asp Asn Lys Pro Tyr Lys
1 5

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Glu Met Thr Tyr Leu
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Phe Ala Gln Phe Ala Asn
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<212> PRT

<213> Porphyromonas gingivalis

<400> 22

Val Leu Pro Ala Met Leu
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<400> 26

Thr Gly Gly Asn Ser Gly Ser Pro Val
1 5

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